

**Idaho State Department of Agriculture
Nursery Advisory Committee**

Final Project Report

Title: Evaluation of Corkbark and Subalpine Fir for Their Potential as Ornamental Nursery Stock and Christmas Trees

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Summary:

This report covers the first year of what is planned as a ten-year study on the growth and development of subalpine and corkbark fir from selected seed sources. In April 2000, we purchased two-year-old subalpine fir (*Abies lasiocarpa* var. *lasiocarpa*) and concolor fir (*Abies lasiocarpa* var. *arizonica*) seedlings (Table 1). The heights of the seedlings varied greatly within and between seed sources. In general, corkbark seedlings were taller than subalpine seedlings after two years in the container nursery. Trees less than 4 inches tall were left in styrofoam containers and overwintered outdoors at the Forest Research Nursery during the winter of 1999-2000. The taller trees were removed from their containers and overwintered in refrigerated storage. When the trees were picked up at the Moscow nursery in mid-April, many of those overwintered outdoors had already broken dormancy and showed signs of new growth. With nearly a month to go before the last average frost date in Sandpoint, those trees were placed inside a greenhouse set at 60/80° F day/night temperatures. The remaining trees were refrigerated at 32-34° F.

All seedlings were planted in early June at the Sandpoint Research & Extension center on raised beds 4-feet wide. Seedlings grown since April in the greenhouse suffered from botrytis infection, new growth that developed in the greenhouse was susceptible to sun scald, and post-transplant losses were significant. Because of their small size, most of these trees would have been culled from the trials, even without the damage. The larger seedlings overwintered in refrigerated

storage transplanted well and grew vigorously. Few post-transplant losses were observed and growth during 2000 was acceptable. Trees are shown in Figures 1-2.

All seedlings will be harvested, graded, and planted in the spring of 2001. Unusually dry weather during the fall of 2000 made fall harvest and planting inadvisable. The trees within each seed source will be divided into four parts and be planted at the University of Idaho Sandpoint R&E Center, Birch Haven Farm, PossAbilities Tree Farm, and Paradise Tree Farm.

After planting, the height of each tree will be recorded and those values used as covariates in future statistical analyses. The heights of trees at the Sandpoint R&E Center, Birch Haven Farm, and PossAbilities Tree Farm will be measured annually, along with percentage survival for each seed source. The same trees will also be used to evaluate time of bud break to determine if seed source selection may reduce spring frost damage, which is a serious problem in nursery production of these species. Survival and tree heights at Paradise tree farm in Enterprise, Oregon will be measured at the time of harvest.

Table 1. Nursery stock planted June 2000 after growing two years in containers.

Seed Source	Subalpine or Corkbark	Number of Seedlings	Size Class
Arapaho National Forest	subalpine	266	B/A
Carson N.F.	subalpine	200	B
Cibola N.F.	subalpine	346	B/C
Dixie N.F.	subalpine	208	C/B
Kaibab N.F.	subalpine	285	C/B
Manti N.F.	subalpine	233	B/A
Rio Grande N.F.	subalpine	263	B
Santa Isabel N.F.	subalpine	206	B/A
San Juan N.F.	subalpine	180	B
Uncompahgre	subalpine	205	B/C
Apache National Forest	corkbark	129	D
Cibola N.F.	corkbark	157	C
Cocino N.F.	corkbark	187	C
Coronado N.F.	corkbark	152	C
Gila N.F.	corkbark	179	D
Santa Fe	corkbark	270	C/B

Size Classes: A = less than 2", B = 2-4", C = 4-6", D = 6" or taller



Figure 1. Corkbark and subalpine fir transplant beds. Sandpoint Research & Extension Center.



Figure 2. Corkbark fir six weeks after transplanting at the Sandpoint Research & Extension Center.